

**CRUISE REPORT**  
**Charter Vessel F/V Vesteraalen**  
**Cruise 1999-02**

**AREA AND PERIOD OF OPERATION**

The fishing vessel Vesteraalen was chartered for 14 days to conduct an investigation of the demersal habitat, and to document Atka mackerel spawning near Seguam Pass, in the Aleutian Islands. The charter began on August 5 in Dutch Harbor, Alaska and ended at the same port on August 18.

**OBJECTIVES**

The primary objective was to make underwater video observations to study the current status of the demersal habitat, particularly in relation to populations of corals, in and around Seguam Pass, an area that has been fished, sometimes with frequent catches of coral, for more than two decades. Underwater observations of potential Atka mackerel spawning grounds near Amlia, Atka, and Seguam Islands, using a live-feed video drop camera, SCUBA, and hand-held still and video cameras were planned as weather and sea conditions permitted.

As time permitted, submerged whale bones lying near the ruins of a whaling station located in Akutan Harbor would be sampled for genetic studies.

**METHODS AND GEAR**

Towed video camera demersal habitat study: The Seguam Pass survey area was divided into two subareas based on current fishery management status, whether closed to fishing or open to fishing. The former subarea encompassed two 10 mile radius sea-lion protection zones centered at Saddleridge Point on Seguam Island and Agligadak Island, directly east of Amlia Island. The sealion protection zones have been closed to commercial trawling for over a decade. The latter subarea potentially included the remainder of the continental shelf lying north, south and east of Amlia Island.

Twenty-five powered camera drags and current drifts were made using a frame equipped with a live-feed color video camera, AC lighting, and an array of ranging lasers, optimally towed about 1 to 2 m off-bottom. An operator viewing the live-feed video remotely controlled a hydraulic winch equipped with heavily weighted Kevlar re-enforced electrical tow cable, thus controlling the altitude of the frame over rough bottom. A counteracting flotation and ballast combination mounted on the frame helped to control its height above bottom in areas with more regular bottom. Video signals were recorded with a digital tape deck. Those videotapes are currently undergoing review and summarization at the Alaska Fisheries Science Center in Seattle. Due to limited cable length, the effective working depth of the towed camera was just over 200 meters, and for optimal viewing, the maximum speed across bottom was approximately 2 knots. Due to the strong currents in the area, the towing schedule and area were adjusted to correspond with favorable tides and currents. Tracklines were recorded from GPS output, and temperatures at depth were recorded by a bathythermograph attached to the camera frame. Fifteen tows were made inside the 10 mile radius sea lion protection zones, and 10 outside. Tows ranged from about ½ h to 2 h in length, at speeds between about 1 and 2 knots. Depths observed ranged from 80 to 200 m (Table 1).

Atka mackerel nesting site observations: Potential Atka mackerel spawning grounds in nearshore areas around Amlia and Seguam Islands were observed with a live-feed video drop camera deployed from a 6 m rigid-hulled inflatable launch. When Atka mackerel were located, SCUBA divers directly observed their activities and at one site, quantified, and photographed Atka mackerel nests. Over a total of 5 days when dives were conducted, scientists made a total of 18 man-dives, recorded more than 8 hours of underwater video documenting fish behavior and habitat, collected numerous biological specimens documenting cannibalism of eggs by Atka mackerel and depredation of egg masses by other species, and measured depth and temperature at nesting sites. Most of the diving effort was concentrated on the northeast side of Seguam Island near Finch Cove. Those videotapes and other recorded observations are currently undergoing summarization at the Alaska Fisheries Science Center in Seattle. Additionally, large numbers of Atka mackerel were observed swimming near, and lying on rock piles and pinnacles at several offshore sites (notably at tows 13, 14, 21, and 22), indicating that spawning occurs in deeper waters away from islands, also.

Whale bone collection: Pieces of whale bone were collected by SCUBA divers near the ruins of the whaling station in Akutan Bay, Akutan Island. The station was in operation between 1913 and 1934. Scientists at the Southwest Fisheries Science Center in La Jolla, California will attempt to recover genetic information from the samples for population studies.

#### **ITINERARY**

5-6 August, Set up equipment in Dutch Harbor, AK  
7 August, Tested equipment outside Dutch Harbor, AK  
8 August, Vessel proceeded to Seguam Pass  
9-16 August, Observations in and near Seguam Pass  
17 August, Vessel returns to Dutch Harbor, AK, unloaded all equipment except SCUBA gear  
17 August, Departed Dutch Harbor proceeding to Akutan Bay, Akutan Island  
18 August, Return to off-load SCUBA gear, samples, and personnel in Dutch Harbor, AK. End cruise.

#### **SCIENTIFIC STAFF AND AFFILIATIONS**

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AFSC = Alaska Fisheries Science Center

RACE = Resource Assessment and Conservation Engineering Division

PMC = Pacific Marine Center

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Table 1. Starting times and positions, distances towed, and depths covered by underwater video camera tows in the Seguam Pass area, during Vesteraalen Cruise 1999-02.

Tow No.	Date, Time	Latitude	Longitude	Tow Distance (m)	Depth Range (m)
1	8/9/99, 1145 h	52° 12.57	172° 57.76	4.23	119 - 122
2	8/9/99, 1625 h	52° 11.38	172° 58.00	2.94	95 - 116
3	8/10/99, 1030 h	52° 10.59	172° 58.24	1.07	109 - 112
4	8/10/99, 1200 h	52° 09.42	172° 58.53	2.01	90 - 102
5	8/10/99, 1430 h	52° 08.30	172° 59.84	0.54	78 - 91
6	8/11/99, 0500 h	52° 10.41	172° 43.94	0.55	135 - 144
7	8/11/99, 1300 h	52° 07.40	172° 38.26	2.57	125 - 136
8	8/12/99, 1330 h	52° 12.97	172° 43.95	0.38	171 - 172
9	8/12/99, 1930 h	52° 11.17	172° 35.70	1.93	119 - 153
10	8/13/99, 0300 h	52° 09.90	172° 30.91	1.52	153 - 160
11	8/13/99, 0520 h	52° 05.65	172° 30.70	1.46	152 - 164
12	8/13/99, 1425 h	52° 06.10	172° 25.40	2.95	159 - 165
13	8/14/99, 0200 h	52° 04.80	172° 17.42	2.86	128 - 158
14	8/14/99, 0430 h	52° 02.77	172° 06.10	2.75	87 - 112
15	8/14/99, 1730 h	52° 07.57	172° 21.14	1.44	165 - 185
16	8/14/99, 1915 h	52° 11.04	172° 25.05	1.14	188 - 205
17	8/14/99, 2130 h	52° 12.54	172° 29.66	2.20	110 - 123
18	8/15/99, 0530 h	52° 08.48	172° 39.98	1.22	111 - 140
19	8/15/99, 0720 h	52° 10.94	172° 41.11	2.27	160 - 170
20	8/15/99, 1145 h	52° 05.53	172° 43.29	1.62	80 - 87
21	8/15/99, 1315 h	51° 59.22	172° 45.70	0.95	77 - 108
22	8/15/99, 1505 h	51° 59.40	172° 41.11	3.05	105 - 192
23	8/15/99, 1815 h	52° 01.01	172° 31.09	2.50	130 - 156
24	8/15/99, 2220 h	52° 10.80	172° 46.95	1.24	150 - 163
25	8/16/99, 0115 h	52° 14.20	172° 47.51	2.35	150 - 185